

vein, he says: "In some species the venation mentioned is inclined to be variable in different or even in the same specimen."

Another variable character is referred to in Dr. Back's key to the species as "fourth posterior cell petiolate at the base or fourth posterior cell sessile or subsessile." *L. pictipes* may be either sessile, subsessile or with a short petiole. *L. annulatus* shows a similar variation although more rarely petiolate. One specimen of *L. pictipes* has the discal cell open on the left wing and another has an adventitious cross-vein in the second submarginal cell of the left wing. A specimen of *L. badius* and another referred doubtfully to *L. incisularis*, have a similar vein in the second posterior cell on the left and right wing respectively. An undetermined species has an adventitious cross-vein in each of the second posterior cells, and one in the second submarginal cell of the left wing. These examples are given to show possible mutations. The type of *L. badius* has the basal third of the wings subfuscus. This is only distinctly marked in one of the fifteen specimens.

THE LIFE HISTORY OF *THRYPTICUS MUHLENBERGLÆ* SP. NOV. (DIPTERA).

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On April 21, 1909, while examining some *Muhlenbergia sylvatica* on the shaded bank of Cascadilla Creek near the Cornell University Campus, Ithaca, N. Y., we noted that many of the stems were broken squarely off. The tip of the cavity was plugged with frass, and in each case a slender dipterous larva was found just below the plug. A number of these larvæ was taken from the straws and placed on cotton in a vial for rearing. By May 4, pupation has taken place. An adult fly was found alive on May 29. Again on May 5, 1910, similar pupæ were found in *Muhlenbergia* stems that had been collected about two weeks previous. Adults emerged from this material on May 24.

The flies were at first thought to be *T. willistoni* which they closely resemble, but subsequent study has convinced us that they are a new species. In order to get fresh material in all stages

upon which to base our descriptions, we again visited in April of the present year, the spot where the former specimens were found. From the larvæ then collected we reared three females and one male May 16-19, 1913. Nothing was learned of the eggs nor the manner of oviposition, but judging from the form of the ovipositor of the female it seems likely that the eggs are laid within the stem plant, probably in May, and that the larva remains thus within the stem until the time of pupation in April of the following year.

Larva (fig. 1). Length, $5\frac{1}{2}$ to 6 mm. Peripneustic. Very pale amber yellow, pharyngeal skeleton dark brown. The combined head and thoracic segments somewhat conical in shape, not differentiated. Abdomen with nine illly defined segments, the anterior ones of greatest diameter, the intermediate longer than wide, anal segment with a prominence on the ventral side, each of the others with a ventral transverse band of ambulacral setulæ, each band consisting of 12 to 15 strong setulæ followed by 2 or 3 rows of more minute ones. The pharyngeal skeleton (figs. 2 and 3) consists of a transverse saddle-like structure anteriorly to which is a pair

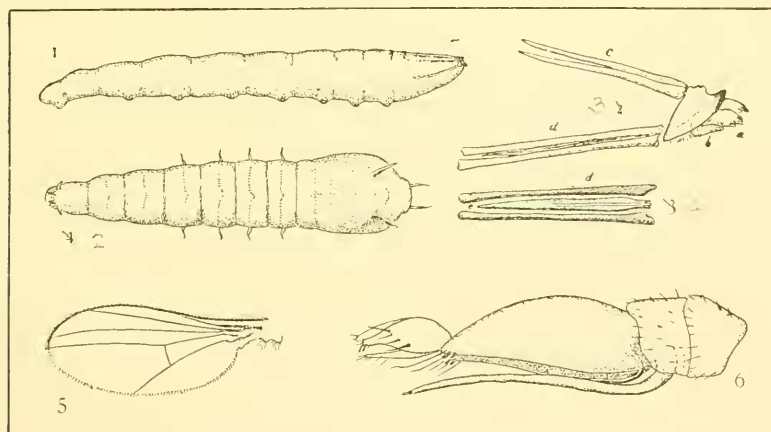


Fig. 1. *Thrypticus muhlenbergiae* sp. nov.

1, larva, x 10. 2, pupa, x 12. 3, pharyngeal skeleton, side view, x 60. 4, pharyngeal skeleton, ventral aspect, x 60. 5, wing of male, x 20. 6, hypopygium, lateral aspect, x 150.

of 3-toothed mandibles (a), each one with an elongate supporting segment (b) and a small basal piece, and projecting caudad are six more elongate parts. Two of the dorsal pieces (c) are slender and rod-like, their caudal ends thin and wedge-shaped, between these is a thin, subtriangular piece; two of the ventral parts (d) are rod-shaped, slightly enlarged at each end, a little longer than the dorsal pieces; between these is a thin lanceolate piece (e).

Pupa (fig. 4). Length, 4 mm. Pale amber yellow in color. At the anterior end are two prominent cephalad projecting setæ; the elongate lanceolate thoracic respiratory organs are yellow. Seven segments may be distinctly seen in the abdomen, of which the first four are each provided with a curved pointed appendage, on each side ventrally; across the center of the dorsum of each of the first six abdominal segments is a transverse row of about 38 setulæ. The last segment is provided with four stout diverging spines.

Imago. Male and female. Length, 1.75 mm., without the hypopygium. Palpi pale yellow, face and front metallic blue, in some lights with a greenish tinge. Antennæ amber yellow, arista pubescent. Frontal setæ and those of thorax and abdomen pale yellow. Eyes sparsely pubescent, cilia of inferior orbit pale. Mesonotum and abdomen bright metallic green with bluish reflections, the former slightly pruinose, the latter with yellow hairs; scutellum metallic blue; prescutellar depression shallow; pleura metallic green, darker toward the base of the wings. Tegulæ pale yellow with pale hairs. Hypopygium (fig. 6) of the male fuscous, the appendages yellow; the basal sclerite which forms the capsule, elongate oval, the lamellæ pear-shaped with several conspicuous, pale, setæ. Ovipositor of the female ferruginous. Legs and coxæ pale yellow. Halteres yellowish. Wings hyaline with dusky yellow veins, venation as figured (fig. 5).

This species is distinguished from *T. willistoni*, by the structure of the hypopygium. Perhaps the yellow antennæ and the wholly yellow coxæ may also be of specific importance.

SOME ACALYPTRATE MUSCIDÆ¹

BY A. L. MELANDER

By an interesting coincidence Mr. J. R. Malloch, then of the United States National Museum, and I made an independent study of the small flies grouped about the Agromyzidæ. Mr. Malloch's paper on the genus *Agromyza* is to appear in the September issue of the Annals of the Entomological Society of America, while his discussion of the other genera is to come out in the Proceedings of the National Museum. The first installment of my paper was printed in the September issue of the Journal of the New York Entomological Society, which was received at the Bussey Institution, through the mails, on September 8. The remainder of this article, dealing with the Geomyzinæ is to appear in the December issue of that publication.

The following notes were made on a recent visit to the National Museum and to the Philadelphia Academy of Science, and are

¹Contributions from the Entomological Laboratory of the Bussey Institution, Harvard University, No. 73.